

Metabolism in Conformers and Regulators

8. Mammals are regulators and can control their internal environment.

- (a) Give one reason why it is important for mammals to regulate their body temperature. 1

- (b) (i) Name the temperature monitoring centre in the body of a mammal. 1

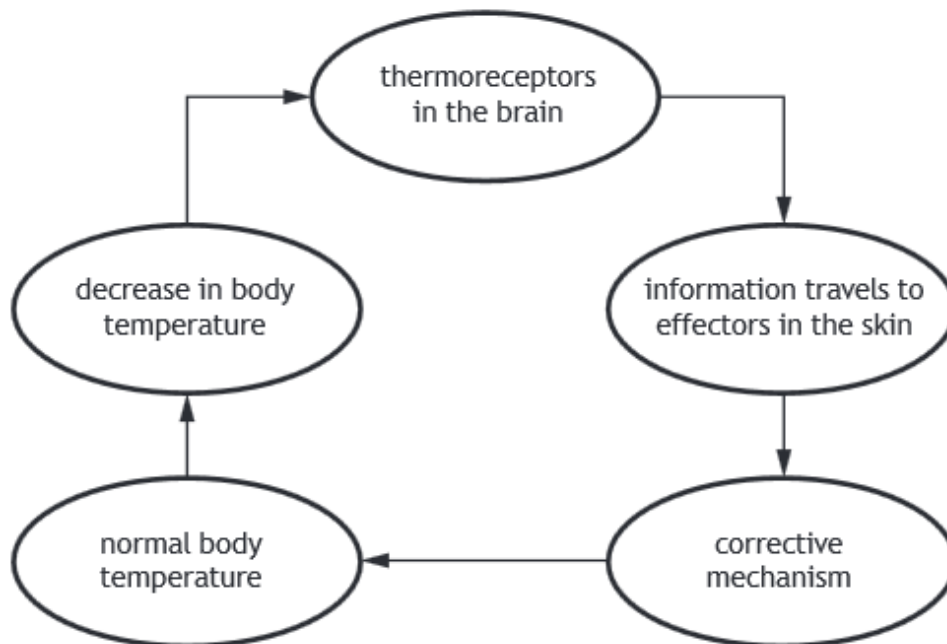
- (ii) State how messages are sent from the temperature monitoring centre to the skin. 1

- (c) The blood vessels in the skin of a mammal respond to a decrease in environmental temperature.

- (i) Describe this response. 1

- (ii) Explain the effect of this response. 1

1. The diagram illustrates thermoregulation in mammals following a decrease in body temperature.



- (a) (i) Name the type of control used in thermoregulation as shown in the diagram. 1
- _____
- (ii) Name the part of the brain in which thermoreceptors are found. 1
- _____
- (iii) State how information travels to the effectors in the skin. 1
- _____

- (b) Effectors in the skin include muscles in the walls of blood vessels.
- (i) Describe the response of these effectors to a decrease in body temperature. 1

- (ii) Explain how this response would help return body temperature to normal. 1

- (c) Explain why it is important for a mammal to regulate its body temperature. 1

11. The following list describes changes which take place during temperature regulation in mammals.

- 1 Vasodilation
- 2 Vasoconstriction
- 3 Contraction of hair erector muscles
- 4 Relaxation of hair erector muscles

Which of these changes takes place in response to a decrease in body temperature?

- A 1 and 3 only
- B 1 and 4 only
- C 2 and 3 only
- D 2 and 4 only

7. Sea bass are saltwater fish that can regulate their internal salt concentration. They have specialised cells in their gills with protein pumps in the membrane. These pumps actively transport excess salt from their bodies.

(a) The specialised cells have many mitochondria.

Explain why this is necessary.

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(b) Many animal species regulate their body temperature.

Explain the importance of regulating body temperature.

1

(c) Compare regulators and conformers in terms of their ecological niches.

1

B Describe and compare metabolism in conformers and regulators.

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